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ABSTRACT

This study sought to discern the extent to which a sample of talented math and science students displayed domain-relevant skills possessed by those expertly trained in history. Subjects' experiences varied in terms of their exposure to primary source materials. The students were presented with five different kinds of documents related to the subject of slavery. Students were asked to study the documents then tell a story tying all of the documents together. Responses were evaluated for interpretive skills as well as for sophistication in evaluating sources for accuracy. These gifted science students varied widely in their abilities to employ skills historians routinely use to reconstruct the past. Those who had previous experience with primary sources fared better than those who had no experience. Skills used in historical research include interpretation of primary sources, assessment of documents for biases, and synthesis of sources into coherent historical narratives. The knowledge that gifted science students may not creatively interpret, synthesize, or critically evaluate historical documents has implications for talent development and for history teaching and learning. Contains 18 references and reproduced documents. (PVD)

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Historical Thinking Ability Among Talented Math and Science Students: An Exploratory Study

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Historical Thinking Ability Among Talented

Math and Science Students

An exploratory study on historical understanding conducted at the Belin-Blank International Center for Gifted Education and Talent Development at the University of Iowa indicates that most gifted science students are not exceptionally adept at employing skills historians routinely use to reconstruct the past. These skills include interpretation of primary sources, assessment of documents for biases they may contain, and synthesis of sources into coherent historical narratives. The knowledge that gifted science students may not creatively interpret, synthesize, or critically evaluate historical documents has implications for talent development, as well as for history teaching and learning.

In their model for development of extraordinary talent, Teresa M. Amabile and others (1994) found that, in all domains of inquiry, the acquisition of "domain-relevant" skills is necessary for cultivating exceptional talent and creativity. They cite domain-relevant skills "as the set of possible responses" or "the set of possible cognitive pathways that may be followed" for a person to solve a problem. Newell and Simon described problem-solvers' domain-relevant skills in terms of their "'network of possible wanderings', which can vary in how rigid (algorithmic) and flexible (hueristic) they are" (cited in Amabile, et.al., 1994:82).

This study sought to discern the extent to which a sample of talented math and science students displayed domain-relevant skills possessed by those expertly trained in history. For a historian, domain-relevant skills determine the flexibility or range of possible interpretive responses he or she can make upon encountering historical materials. Those practiced in the historians' craft interrogate documents for a variety of possible meanings they contain. In this endeavor, historians display skepticism toward a document's reliability and scrutinize it for potential bias. They possess, in Samuel Wineburg's (1991a,b) phrase a "sourcing hueristic" that enables them to scrutinize documents for authorial viewpoint, bias and intent. Historians also compare documents for "intertextual" coherence (Wineburg, 1991a) in determining "what happened" in the past. In other words, historians seek corroborating evidence to assess how well one document's account coheres with other accounts and perspectives. Finally, in light of previous research and knowledge, historians use evidence to construct narratives that describe and explain historical events and developments (Wineburg, 1991a; Booth, 1993).

Subjects

This study examined the domain-relevant history skills of 14 self-selected students, ages 16 through 18. At the time of the study (Summer 1995), subjects were attending a three-week enrichment program in engineering at the Belin-

Blank Center for Gifted Education and Talent Development. The subjects had been identified by school counselors as especially talented in math and science. The subjects (from middle- or upper-middle-class backgrounds) traveled to the Belin-Blank Center from states in the Midwest. Each expected to pursue a career in engineering, medicine, or some other science-related occupation. Eight males and six females (all Caucasian) particpated in the study.

Subjects' experiences varied in terms of their exposures to primary source materials. Five subjects previously had enrolled in Advanced Placement history courses, wherein teachers typically employ primary sources for instructional purposes. Two recalled similar experiences with primary sources. The other seven subjects reported they had no previous experience with the interpretation of primary source materials.

Research Procedures

A. Document selection

To detect domain-relevant history skills, we presented to subjects five different kinds of documents related to the theme of slavery in the United States. The five documents included (a) an etching from the 1700s illustrating a coffle of slaves in Africa marched under guard to the sea, (b) a 1938 painting titled "Amistad" (based upon an actual event) depicting a slave revolt at sea, (c) an

excerpt from the 1852 Alabama Slave Code, (d) an 1861 reward notice for an escaped slave, and (e) a photograph (dated 1863 or 1864) of armed African Americans in Union army uniform.

There were specific reasons for employing each document selected for presentation to subjects as well as for using a mix of documents--a painting, an etching, a photograph, etc.

We presented subjects with several documents because we wanted to simulate the historian's task of weaving them together into a coherent story. We also used a mix of different kinds of documents to offer subjects opportunities to interpret non-discursive materials. With respect to the latter, we wanted to determine if the painting and the etching enabled students to detect the human "voice" behind these particular documents. Based on previous research (Singer, 1994a,b; Epstein, 1994), we sought to detect if students were more responsive to the interpretive possibilities of these representations as compared to written materials.

Subjects also were presented a mix of documents because that mix invited subjects to make intertextual comparisons between the documents. On the back of each document, we also included the author of the source and the date it was produced. If a subject checked the source and date of a document, he or she

would expose the availability to the subject of a "sourcing hueristic"--the tendency to "look first at the attribution of a document" in order to assess "the stance it might take, and its truthfulness or accuracy" (Wineburg, 1991a:79 and 1991b).

Together, the five documents provided subjects with the opportunity to construct a rich and complex portrait of slavery. This is further suggested by reasons (listed below) for selecting each of the five documents chosen for presentation to participants (see Appendix I for reproductions of documents used in this study).

1. Slave coffle, 1700s. As with most of the other documents used in the study, the etching of a coffle of slaves in Africa indicated that slavery was a terrible system of exploitation. Combined with other documents, it suggested an overarching generalization of oppression that might inform subject's essays. Such a generalization, we suspected, would cohere with subject's previous understanding about slavery. In addition, the etching invited students' attention to the fact that Africans were implicated in the enslavement of other Africans. This fact complicates the story of slavery. The system did not have a strict black/white divide. We wanted to discern if subjects might complicate their narratives with this information. Finally, we wanted to see if subjects regarded an etching as

more or less reliable as historical evidence than other documents presented to them, such as the photograph (i.e., the etching might expose the availability to subjects of a sourcing hueristic).

2. "Amistad, 1841". We employed the "Amistad, 1841" painting to see if students recognized that slaves sometimes rebelled violently against their captors. In other words, "Amistad, 1841" encouraged subjects to explore the theme of slave resistance, and potentially weave the theme of resistance into a refined history of slavery. The painting, too, revealed whether subjects could deploy a sourcing hueristic. Since the artist Hale A. Woodruff painted his celebration of a slave revolt in 1938, it invited students to question or ponder its validity as a source of historical evidence.

3. Alabama slave code, 1852. The excerpts from the Alabama Slave Code provided subjects with many interpretive possibilities and lent itself to an overarching interpretation of slavery as a system of rigid, legally sanctioned control over the slaves' lives. The document revealed that all white owners of slaves had to participate in "patrol duty" and were subject to penalties for failure to honor their responsibilities under the code. The document also provided specific information on how restricted the lives of the slaves were. Slaves required passes or letters to be away from their owners' plantation. They could

not keep dogs, carry a weapon, or own property. They could not assemble in groups of more than five away from their owner's plantation.

In addition to providing a list of written specifics about slavery in Alabama, this document and others allowed subjects to locate "subtext" (Wineburg, 1991a). As with the other documents, it "suggests" that slaves tended to rebel or flee their circumstances. Further, we wanted to see whether subjects would be attracted to this relatively long, written document as compared to non-discursive materials, e.g., the photograph (described below), painting or etching (Singer, 1994a).

4. Runaway slave advertisement, 1861. The escape notice for a runaway, which was a reproduction of an actual document, also provided subjects with a number of interpretive possibilties. As with other documents, subjects could recognize that slaves escaped and resisted. The poster suggested also that there were organized mechanisms in place for recapturing escaped slaves. Finally, the poster, to the trained eye, has historical validity; individuals with domain-relevant skills would be attracted to a document "from the time."

5. African-American Union soldiers, ca. 1864. Lastly, we included a photograph of Civil War soldiers because it also suggested a theme of resistance. In other words, we wanted to see if subjects could weave the photo into a story

that would include discussion of slaves' participation in their own liberation through armed struggle. In addition, we wanted to see if the subjects regarded a photograph from the time as a reliable historical document.

B. Procedures for eliciting domain-relevant skills

To elicit domain-relevant skills, we presented to each subject the five historical documents described above. First, however, there was a "warm-up" phase in order to familiarize participants with the activity (see Appendix II for the interview procedure and protocol). During warm-up, the interviewer showed the subject a reproduction of a painting called "Slave Lynching" (see Apendix I), by Claude Clark. (The warm-up phase lasted about 5 minutes). Interviewers asked subjects to provide their thoughts about the painting's contents. To encourage subjects, an interviewer asked: "What about this picture stands out to you? What grabs your attention?" The interviewer also asked each subject to discuss what the picture conveyed about slavery. Further, the subject was asked whether the picture accurately portrayed "what slavery was like." At the end of the warm-up exercise, the interviewer pointed out to the subject that on the reverse side of the painting there was important information about the item: the painting's title, its author, and the date it was painted.

Following the warm-up period, the interviewer presented the five documents to the subject, all at the same time. During this phase of the study, lasting 15 minutes, the interviewer instructed the subject to examine each item and identify "what you think is interesting about each one . . . just as you did with the warm-up picture." At this point, the interviewer also told the subject that he/she would be asked, after studying the items, to tell a story to the interviewer "that ties all of the documents together." In addition, the interviewer let the subject know that there were many possible stories; no story was "right or wrong." The interviewer encouraged subjects to take notes and make an outline of the story. The subject could then consult notes for assistance when relating the story to the interviewer.

After studying the documents and taking notes, the subject told his or her story to the interviewer. (This phase of the interview procedure lasted about ten minutes.) The subject shared the story without interruption.

After telling his or her story about slavery, the subject was asked to identify sources most important for their brief history of slavery: "Which documents were most important to your story? Why?" Subsequently, the interviewer raised questions to discern a subject's ability to assess the various documents' reliability as historical evidence: "Which documents are the best ones

for writing an accurate history of slavery? Which seem the best sources of information? Which seem the least reliable sources of information about slavery?"

Finally, to assess a subject's experience with primary sources, we asked them if they had ever before participated in a similar activity. We wanted to know if they had encountered primary sources during history instruction at their schools or at some other locale. We also asked subjects whether or not they had been involved in Advanced Placement history, the International Baccalaureate or some other advanced history curricula. The entire interview was audio tape recorded and lasted 30 minutes maximum.

During the interview procedure, researchers adhered to a "naive technique . . . in which the interviewer refuse[d] to accept anything as understood, declining to invent meaning for the subject's reponses" (Seixas, 1994:288). However, researchers occasionally offered clarification or encouraged subjects to elaborate upon a comment or observation that they had made.

Analytical Approach

Three researchers independently analyzed each subject's interview to assess the presence of three signposts of domain-relevant skills in historical understanding: (a) interpretive acumen, (b) ability to identify themes or

generalizations, and (c) application of a sourcing hueristic. We also asked subjects if they had previous experience with historical documents.

A subject revealed interpretation skills if he or she attended to parts or aspects of a document to derive meaning about what slavery was like for slaves or slaveowners. In this part of the analysis, we also determined whether subjects provided elaborate or circumscribed interpretations of the materials presented them. Detailed analysis of documents and numerous, possible interpretations of several documents indicated a higher level of skill at interpretation. For example, an interpretation of the escaped slave advertisement might be confined to a recognition slaves indeed tried to escape and that slave owners tried hard to get them back. A more analytical and refined interpretation, however, might note that slave men were diminished by calling them "boy," that slaves lived impoverished lives as indicated by the reference to "shoes nearly worn out," and that Severn Black, the slave named in the document, escaped at almost the same moment the Civil War commenced.

Researchers also recorded whether or not subjects identified an overarching theme or generalization to tie together the documents into a coherent narrative. Further, we checked to see if a subject constructed a complicated narrative--one, for example, that wove themes of oppression and resistance into

his or her story. We also assessed whether and how a subject used the sources as evidence in support of his/her theme or generalization.

Third, we analyzed interviews to determine whether subjects deployed a sourcing hueristic and read documents with a critical eye. We assessed, in other words, whether each subject could distinguish some document(s) as more reliable sources of evidence about slavery than others. We also sought to elicit the subject's reasons for making such decisions.

Since domain-relevant history skills derive from practice with historical documents, we concluded interview by asking subjects whether or not they participated in similar exercises. We were interested in detecting whether previous exposures to primary sources provoked particularly distinguished performance in the tasks we presented to participants in this study. So, we asked these talented science students whether or not they had enrolled in International Baccalaureate (IB) or Advanced Placement (AP) history classes, since AP and IB courses require students to work with primary sources.

Results

Analysis of taped interviews provided information to discern the presence of domain-relevant history skills of the talented science students who were

subjects of this study. Data derived from interviews clustered around eight questions.

A. Interpretive abilities

1. Did the subjects demonstrate interpretive abilities? (Interpretive abilities were assessed in both the warm-up and multiple-documents components of the study.)

Results: 14 of 14 or 100% demonstrated interpretive abilities. All subjects either broke down a document(s) into its constituent parts, (deriving meaning from the parts), or interpreted the document as a whole.

B. Abilities to synthesize documents

2. Did the subject (a) create a story, (b) create a history, (c) simply discuss each of the items without drawing connections between them, or (d) identify an overarching theme which linked primary sources into a coherent narrative.

Results: (a) 4 of the 14 subjects, or 29% created a story

(b) 5 of the 14 subjects, or 36% created a history.

(c) 6 of the 14 subjects, or 43% simply discussed the items without weaving them into a story or history.

(d) 2 of the 14 subjects, or 14% created a story with an overarching theme which linked primary sources into a coherent narrative.

C. Deployment of a sourcing hueristic

3. Did the subject employ a sourcing hueristic, e. g., did s/he examine the sources of the items that were indicated on the back side of each document?

Results: 7 of 14, or 50% of the subjects examined the sources of the documents.

4. Which items did the subject identify as being most important to his or her "story" (a) the coffle etching (18th century), (b) the painting of the Amistad revolt (1938), (c) the slave codes (1851), (d) the escaped slave reward notice (1850), and/or (e) the African-American Civil War photo (ca. 1865). (For this question and those that follow, the sample was reduced to 13 subjects as the data for one subject was lost due to a tape malfunction.)

Results: (a) 5 of the 13 subjects, or 38%

(b) 2 of the 13 subjects, or 15%

(c) 10 of the 13 subjects, or 77%

(d) 7 of the 13 subjects or 54%

(e) 4 of the 13 subjects or 31%

5. Which of the items did the subject identify as the best (most sources of information for writing an accurate history of slavery (same as (a) - (e) as in #4, above).

Results: (a) 4 of the 13 subjects, or 31%

(b) 0 of the 13 subjects, or 0%

(c) 12 of the 13 subjects, or 92%

(d) 7 of the 13 subjects, or 54%

(e) 6 of the 13 subjects, or 46%

6. Why were those items identified as the best sources?

Results: Subject's rationale for selection of items as the best sources of information fell within three broad categories.

(a) The item is a primary source, from the time of slavery in the United States, and/or based on an eyewitness account.

Number of subjects in this category: 2 of 13 or 15%

(b) The item is written and therefore more reliable.

Number of subjects in this category: 6 of 13 or 46%

(c) The content of the item(s) coheres/does not cohere with previous knowledge or preconceptions regarding of the slave experience.

Number of subjects in this category: 5 of 13 or 38%

D. Previous exposures using primary sources

7. Had the subject participated in this type of activity before?

Results: 7 of the 14 subjects, or 50%

8. Has the subject taken an AP history class before?

Results: 5 of the 14 subjects, or 36%

Discussion

Interpretive skills

While the research results show that all the talented science participants in this study displayed the ability to interpret document(s), their level or range of interpretive competence varied considerably.

Bill was one of only two subjects to demonstrate a high level of interpretive acumen by providing elaborate interpretations of each of the documents. He moved fluidly from one document to another offering a variety of interpretations for each one. For example, he interpreted the photograph of African-Americans in Civil War uniform as reflecting Blacks' progress in attaining equal rights. However, he observed also that these rights remained limited since the photograph showed that the African-American soldiers remained in segragated "battalions," were kept in "social isolation," and were "relatively powerless."

In contrast to Bill, Christine displayed limited interpretation skills. She chose only two of the documents for interpretation and did not show the ability to locate the possible meanings of either one. Rather, she articulated only one meaning for purposes of the story she constructed.

Most of the study's participants fell between the extremes represented by Christine and Bill. They usually offered only one possible interpretation of what some of the documents indicated about slavery.

Skills at synthesis and identifying generalizations

While all subjects displayed at least some ability to analyze or interpret documents, only 2 of the 14 of subjects (14%) identified an overarching theme for their story which linked primary sources into a coherent narrative. Bill, in addition to showing interpretive acumen, also displayed the domain-relevant skill of weaving his interpretations of documents into a coherent narrative with an overarching theme. He employed the documents as evidence to support his generalization that they revealed "a methodical means and management to continue white supremacy." He broke the documents down into constituent parts as a way of deriving more detailed and elaborate meaning for each one. And, he elaborated meanings further by comparing one document with another. By means of comparative analysis of the documents, Bill complicated his narrative by

making reference to slaves tendencies to resist their oppresssion. He interpreted the documents as indicating white "paranoia" that slaves might rebel violently and had to be controlled.

Four study participants produced a story suggested by the documents. However, these subjects failed to identify a forceful unifying theme to tie the sources together. The other eight subjects (57%) simply placed the documents into a chronology and/or interpreted them one by one. In sum, a large majority (86%) of subjects were unable to establish a generalization to connect the documents into a coherent whole.

Ability to evaluate documents (sourcing hueristic)

Subjects displayed various levels of sophistication with respect to deployment of a sourcing hueristic. There were two subjects who recognized the potential that all the documents had for contributing to an accurate account of slavery. They reflected critically on each of the documents, and showed a predeliction for intertextual comparison.

Joe was one of the subjects who demonstrated a lively sourcing hueristic. He critically appraised documents by referencing the perspective of those who produced them. He also checked the back of each source to see "who had been seeing what at the time." He finally alighted upon the Slave Codes as most

reliable but still remained skeptical. He wanted to make sure that our document really was a representation of an actual document.

Half of the thirteen subjects displayed what we termed a "weak" sourcing hueristic. They showed little or no recognition that some documents are more or less accurate or reliable sources of historical information than others. This was suggested first by their failure to turn over the document to see where it was from or when it was produced.

When questioned about various documents' reliability as evidence, these subjects with a weak sourcing hueristic provided different kinds of explanations for their choices of reliable or unreliable documents. Two subjects chose a document(s) because it cohered with their previous conceptions of slavery. Jennifer, for example, regarded the warm-up painting ("Slave Lynching") as most reliable because it reflected knowledge she derived from a movie. Two other subjects seemed attracted to documents that provided them with new or interesting information. Evelyn, for example, cited "Amistad, 1841" as most reliable because it showed African-Americans "fighting back." Evelyn apparently confused the kind of information deriveable from the document with the document's reliability as a source of information.

At least three subjects with a weak sourcing hueristic chose written documents as the most reliable source for rendering an accurate account of slavery. Gladys preferred the Alabama slave codes and escaped slave ad because of their "written nature" and because "pictures can be more easily distorted." Christine displayed a similar hueristic in articulating her preference for the escaped slave ad. "It's just like facts," Christine asserted, "because it's out of something like a newpaper." Gladys, like Christine, dismissed paintings as historical evidence because they "are just [the artist's] opinions. They're not accurate. They may have happened but you cannot prove it." Interestingly, Kevin chose the written documents (slave codes and slave ad) because they were not open for interpretation. In Kevin's view, they did not provide a chance for the bias of either the author or the historian with a chance to "bring your own bias into it."

Previous experience with historical documents

Half of 14 the participants reported that they had had an experience(s) with historical materials similar to the ones they encountered through their participation in this study. These experiences varied widely.

Five subjects reported that they had completed an Advanced Placement (AP) history course. To prepare their students for the yearly, standardized

Advanced Placement history examinations, AP history teachers typically have students work a lot with primary sources. This is because the Document-Based Question (DBQ) of the AP exam always requires examinees to show their ability to interpret primary sources (Kellogg, 1993).

Of the two other (non-AP) subjects who had experience with documents, one recalled a single exposure to historical artifiacts, and the other referred to occasional exercises of the kind presented in this study.

In sum, the research suggests that previous experience with historical documents enabled some talented science students to display relatively outstanding performance in the tasks we presented them. Compared to their counterparts in the study, "experienced" subjects were able to provide lively interpretations of documents, weave them into a refined short history with an overarching thematic, and apply a sourcing hueristic that enabled them to carefully evaluate the reliability of documents as sources of historical evidence.

Discussion and Implications

While the results of this exploratory study must be interpreted with caution, they appear meaningful in light of available research on historical understanding as well as research and theory on gifted education and talent development. Over the last 17 years, investigations of historical understanding

have documented how teachers can successfully employ primary sources to develop domain-relevant history skills (see, e.g., VanSledright and Brophy, 1992; Levstik and Smith, 1996; Blake, 1981; Booth, 1980, 1993; Shemilt, 1980; Drake, 1986). Without such instruction, however, the talented science students in this study were not adept at interpreting, synthesizing and evaluating historical documents. In the absence of sustained practice with the domain-relevant skills of the historian, they were unable to move easily from the domain of scientific inquiry to the domain of historical inquiry.

The knowledge that talented science students cannot easily transfer science skills to historical inquiry also coheres with recent studies of creativity and talent development. Individuals with a great deal of innate talent (nature) must be strongly developed through appropriate experience (nurture) in particular domains of inquiry. If a talented person possesses the requisite domain-relevant skills in science, music, painting or history, then he or she is in a position to employ the "creativity-relevant skills" necessary for outstanding production. A talented person with creativity-relevant skills will explore the variety of possible pathways available in search of an answer to a task or problem. In addition, he or she will exert "independence and self-discipline," possess an "orientation toward risk-taking," and will demonstrate a "tolerance for ambiguity." Further, the

creative person with domain-relevant skills, will show "perserverance in the face of frustration, and a relative unconcern for social approval" (Amabile, et al., 1994; Hennessy, 1997).

Two of fourteen talented science students in this study who had previous and sustained exposures to primary source materials showed evidence of a high level of performance in the history problem presented to them. With the availability of domain-relevant skills, they showed the motivation, perserverance and fluidity of thought that are hallmarks of outstanding production. However, a large majority of the talented students who participated in this study did not offer robust interpretations of historical documents, read them with a critical eye, identify themes or generalizations, or tie evidence together into a thoughtful narrative. In short, most did not possess the domain-relevant skills for creative performance in the historian's craft.

To students identified as especially talented, and to those without these extraordinary abilities, history educators should provide many opportunities to interpret, analyze, synthesize and critically evaluate primary source materials. This point has been accentuated in the recently published National Standards for History (1996) as well as standards published by the National Council for the Social Studies (1994:34). The National Standards for History devote all of

Chapter 2 to elucidation of "standards in historical thinking" which teachers should help students attain. The standards in historical thinking call for exposures to historical data, which students should "interrogate," "interpret," "compare," and "construct" into historical narratives (National Standards for History, pp. 15-16). Such exposures lead students to comprehend history as a human construction based on conversation and debate about what happened and why. All students, whether especially "talented" or not, deserve to share in this challenging and enriching intellectual enterprise.

REFERENCES

Amabile, Teresa M., et. al. (1994). Person and environment in talent development: The case of creativity. In Nicholas Colangelo, et. al. (Eds.) Talent development: Volume II (pp. 265-277). Dayton, OH: Ohio Psychology Press.

Blake, David W. (1981). Observing children learning history. The History Teacher, 14(4), 533-549.

Booth, Martin. (1980). A modern world history course and the thinking of adolescent pupils. Educational Review, 32(3), 245-257.

Booth, Martin. (1993). Students' historical thinking and the national history curriculum in England. Theory and Research in Social Education, 21(2), 105-127.

Drake, Frederick D. (1986). Using primary sources and historians' interpretations in the classroom. Teaching History, 11(2), 50-61.

Epstein, Terrie L. (1994). The arts of history: An analysis of secondary students' interpretations of the arts in historical contexts. Journal of Curriculum and Supervision, 9(2), 174-194.

Gabella, Marcy Singer. (1994). Beyond the looking glass: Bringing students into the conversation of historical inquiry. Theory and Research in Social Education, 22(3), 340-363.

Gabella, Marcy Singer. (1995). The art(s) of historical sense. Journal of Curriculum Studies, 27(2), 139-163.

Hennessy, Beth A. (1997). Teaching for creative development: A social-psychological approach. In Nicholas Colangelo and Gary A. Davis (Eds.) Handbook of Gifted Education (pp. 282-291). Dayton, OH: Ohio Psychology Press.

Kellogg, William O. (1993). AP United States history: Advanced placement examination in American history. Hauppauge, NY: Barron's, Inc.

Levstik, Linda & Smith, Dehea. (1996, April). I've never done this before: Building a community of historical inquiry in a third grade classroom. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

National Center for History in the Schools. (1996). National Standards for History. Los Angeles, CA.

National Council for the Social Studies. (1994). Expectations of Excellence: Curriculum Standards for Social Studies. Washington, DC: Author.

Seixas, Peter. (1994). Students' understanding of historical significance. Theory and Research in Social Education, 22(3), 281-304.

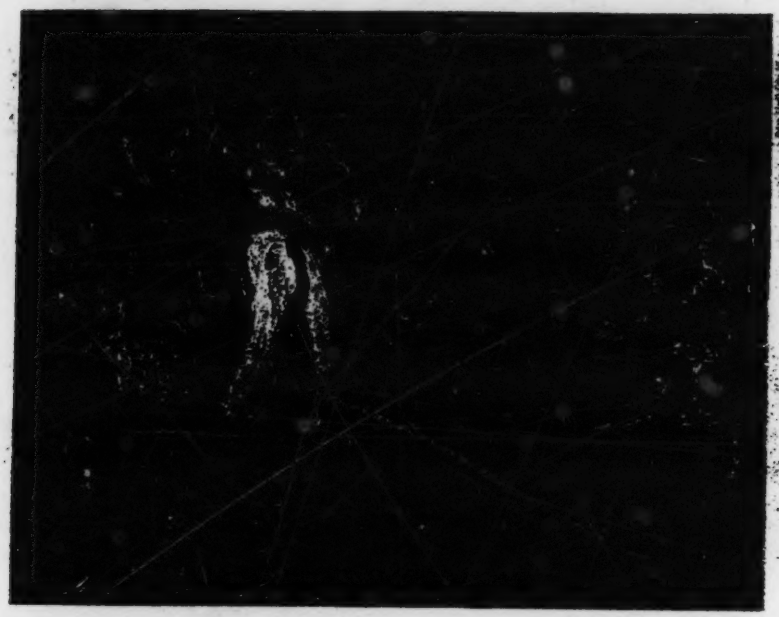
Shemilt, Denis. (1980). Evaluation study: Schools Council History 13-16 Project. Edinburgh: Homes McDougall.

Wineburg, Samuel S. (1991a). Historical problem solving: A study of the cognitive processes used in the evaluation of documentary and pictorial evidence. Journal of Educational Psychology, 83(1), 73-87.

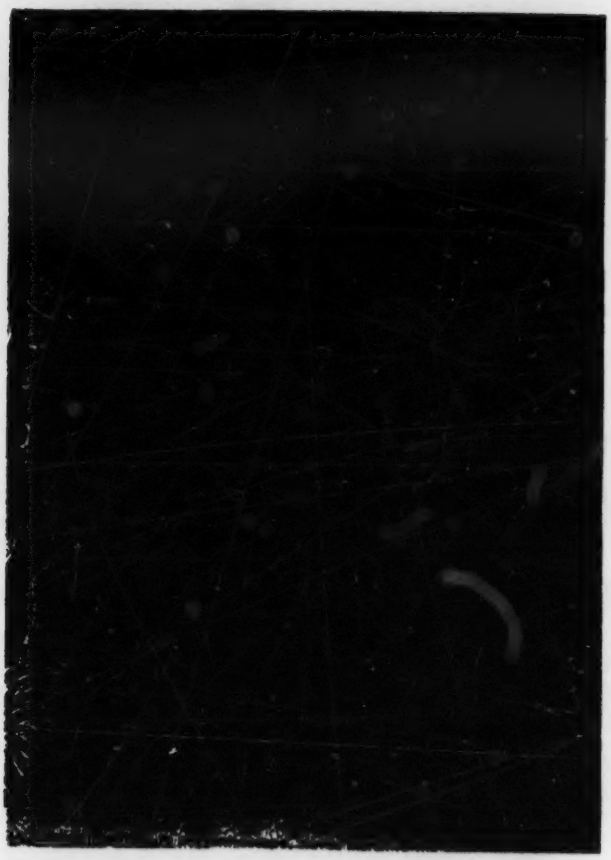
Wineburg, Samuel S. (1991b). On the reading of historical texts: Notes on the breach between school and the academy. American Educational Research Journal, 28(3), 495-519.

VanSledright, Bruce A. & Brophy, Jere. (1992). Storytelling, imagination, and elaboration in children's historical reconstructions. American Education Research Journal, 29(4), 837-859.

APPENDIX I



"Slave Lynching," 1946



Slave coffle, 1700s

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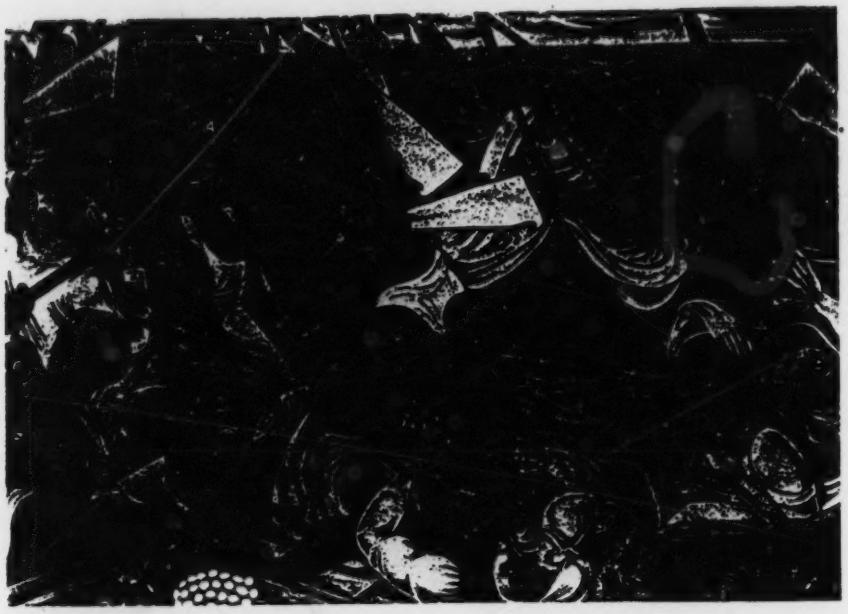

"Amistad, 1841"

African-American Union soldiers, ca. 1864

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The Alabama Slave Code of 1852

Patrols

1. All white male owners of slaves ... and all other free white persons ... are subject to perform patrol duty.

2. Each detachment must patrol such parts of the precinct as in their judgement is necessary, at least once a week at night ....

3. The patrol has power to enter in a peacable manner, upon any plantation ....

4. Any member of a patrol detachment may send a substitute.

5. The leader, or any member of the detachment, failing to appear ... must be fined ten dollars.

Slaves

1. No slave must go beyond the limits of the plantation on which he (or she) resides, without a pass, or some letter from his master or overseer.

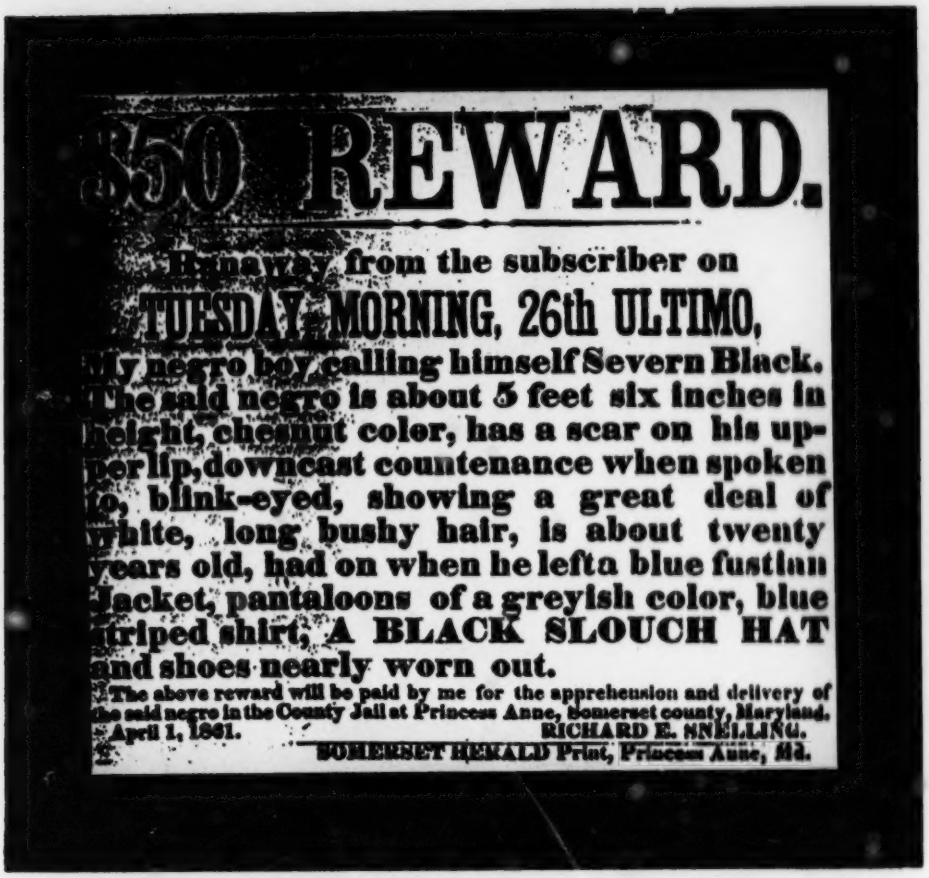
2. No slave can keep or carry a gun, powder, shot, club, or other weapon...

3. No slave can, under any pretence, keep a dog.

4. No slave can own property.

5. Not more than five male slaves shall assemble together at any place off the plantation.

Alabama slave code, 1852



$50 REWARD.

Runaway from the subscriber on

TUESDAY MORNING, 26th ULTIMO,

My negro boy calling himself Severn Black. The said negro is about 5 feet six inches in height, chesnut color, has a scar on his upper lip, downcast countenance when spoken to, blink-eyed, showing a great deal of white, long bushy hair, is about twenty years old, had on when he left a blue fustian jacket, pantaloons of a greyish color, blue striped shirt, A BLACK SLOUCH HAT and shoes nearly worn out.

The above reward will be paid by me for the apprehension and delivery of the said negro in the County Jail at Princess Anne, Somerset county, Maryland.

April 1, 1861. RICHARD E. SNELLING.

SOMERSET HERALD Print, Princess Anne, Md.

Runaway slave advertisement, 1861

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APPENDIX II

Historical Thinking Ability Among Talented Science Students

Interview Schedule

by Bruce Fehn

Purpose: To gauge the historical thinking abilities of talented science students attending the 1995 Summer programs of the Belin-Blank Center for Gifted Educatin and Talent Development, College of Education, The University of Iowa, Iowa City, IA 52242.

Materials:
Tape recorder/extension cord
60 minute tapes
Note pads, writing utensils
Historical materials
"Do Not Disturb" sign
Appropriate room keys/watch

Beginning:
1. Get student's name and age
2. Give student option to choose own pseudonym

Phase I: Warm up (3-5 min.)
1. Show student the warm-up picture
2. Tell student you are going to ask some questions about the picture. **Stress that there are no right or wrong answers. We want to hear your thoughts. Don't tell us what you think we want to hear.**
3. What about this picture stands out to you? What grabs your attention?
4. What do you think this picture is about?
5. Is this really what slavery was like? What makes you think so?

Remember: Lots of praise and encouragement during Phase I (and throughout the project).

Transition: Now I want you to think about some other items in the same way you just did about the painting.
- Place 5 documents in front of the student
- **NOTE THE SOURCES ON THE BACK**

Phase II: Examining the documents (5-7 min.)

1. Take a few minutes to look at these pictures and documents. See what jumps out at you--what you think is interesting about each.
2. Take a few notes about the documents. Keep in mind that you're going to be creating a story about them, so the notes will help you organize your thoughts.

Phase III: Creating a story (7-10 min.)

1. Take a sheet of paper and organize your notes into a story that ties all of these documents together.
2. Length is not that important, but try to write about a page if possible.
3. Don't worry about grammar or spelling. I'm concerned about what you think.
4. Remember, there are no right or wrong answers.
5. In about 10 minutes, I'll ask you to tell me the story and we'll talk about it.

Phase IV: Discussion (10 min.)

1. Tell me your story. (Don't interrupt student's story.) If student becomes stuck, encourage by having him/her look at the notes or the documents.
2. Discuss the story using questions like the following:
   - Which documents were most important to your story? Why?
   - Which documents are the best ones for writing an accurate history of slavery?
   - Which seem to be the best sources of information? Which seem to be unreliable sources of information?
3. Have you ever done this kind of thing before (i.e., used historical documents and write about them)?
4. Have you ever taken an AP History class?

Keep an eye on time during Phase IV. Interview is only supposed to last 30 minutes.

Wrap-up:

1. Thank student for participating.
2. Encourage student not to say anything about the interview to other students. Explain why and ask them not to say anything about it beyond, "It's no big deal."